

Mark Scheme (Results)

November 2010

IGCSE

IGCSE Chemistry (4335) Paper 1F
IGCSE Science (Double Award) (4437) Paper 08

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our **Ask The Expert** email service helpful.

Ask The Expert can be accessed online at the following link:

<http://www.edexcel.com/Aboutus/contact-us/>

Alternately, you can speak directly to a subject specialist at Edexcel on our dedicated Science telephone line: 0844 576 0037

(If you are calling from outside the UK please dial + 44 1204 770 696 and state that you would like to speak to the **Science** subject specialist).

November 2010

All the material in this publication is copyright

© Edexcel Ltd 2010

IGCSE CHEMISTRY 4335/03 4437/08 - NOVEMBER 2010

Question			Mark	Acceptable answers	Notes	Total
1	a		M1	C		1
			M2	D		1
			M3	B		1
	b		M1	A		1
			M2	C		1
	c	i	M1	A / E / F		1
					Accept correct names for all of above	
		ii	M1	to neutralise /use up the acid	Accept complete the reaction	1
		iii	M1	zinc carbonate / ZnCO_3		1

Question			Mark	Acceptable answers	Notes	Total
2	a		M1	20.60	Final zero needed	1
			M2	1.75		1
					Award 1 for two correct readings in wrong order	
			M3	18.85	CQ on M1 and M2	1
	b	i	M1	ticks under 2nd and 4th columns		1
		ii	M1	$\frac{26.1(0) + 26.2(0)}{2}$	No penalty for missing zeroes CQ on ticked values	1
			M2	26.15	Ignore unit M2 DEP on ticked values or on M1 Correct final answer scores M1 and M2	1
					If other than 2nd and 4th values ticked, see separate table showing acceptable answers for possible combinations of	

					ticked values All answers must be to 2 dp except for 26.6 from averaging all four titres	
--	--	--	--	--	--	--

Question			Mark	Acceptable answers	Notes	Total
3	a		M1	sulphur / S / S ₈		1
	b	i	M1	10 (cm ³)	Accept value written in table	1
		ii	M1	temperature / conical flask / swirling / cross / concentration of acid	Accept concentration of <u>original</u> thiosuphate solution	1
	c		M1	scale of 1 cm rep 5 s	Scale must start at zero or 5 but starting zero not required Accept 1 cm rep 4 s Must be at least two numbers	1
			M2 M3	five points correctly plotted	Must be to the nearest gridlines Deduct 1 mark for each error	2
			M4	curve of best fit including 80% or 100% but not both	Line must not go to the origin	1
	d	i	M1	1 ÷ 9		1
			M2	0.11 (s ⁻¹)	No ECF	1

		ii	M1	times are short(er) / reaction is fast		1
			M2	big(ger) (percentage) error in measuring time/using clock	Accept difficult to measure time (accurately)	1
	e	i	M1	rate (directly) proportional to concentration	<p>Accept "concentration proportional to rate"</p> <p>Accept quantitative answer such as "rate doubles when concentration doubles"</p> <p>Do not accept "they are proportional"</p> <p>Award 1 mark for qualitative expression such as "rate increases as concentration increases"</p>	2
		ii	M1	collisions	OWTTE	1
			M2	more frequent	Must be some reference to time, eg more per second	1
					<p>If atoms or molecules used in place of particles/ions, award max 1</p> <p>Do not award M2 if any reference to increasing speed /energy/activation energy</p> <p>Ignore references to effectiveness of collisions</p>	

Question			Mark	Acceptable answers	Notes	Total
4	a		M1	18.8		1
			M2	24.2		1
					Award 1 for two correct readings in wrong order	
			M3	5.4	CQ on M1 and M2	1
	b		M1	repeat		1
	c	i	M1	4		1
			M2	not stated whether temperature increase or decrease	DEP on M1	1
		ii	M1	(headings) salt/student number AND start temp AND end temp	Ignore mass of salt and student column headings	1
			M2	(units) °C for both temperature columns	Accept °C in one column if start and end temps included	1

			M3 M4	(results) all three salts/student numbers and six temps included	Deduct 1 mark for each error and omission Two correct temperatures for one experiment in wrong order loses 1 mark	2
					If results for student identified in (c)(i) included, then only M1 and M2 can be awarded	
	d	i	M1	insulate / use a polystyrene cup (instead of a beaker)		1
		ii	M1	salt name cannot be plotted / no connection between name and temperature change	Accept only one continuous variable / one variable is categoric / only one set of numbers	1
		iii	M1	100	Ignore units	1

Question			Mark	Acceptable answers	Notes	Total
5	a		M1	Q		1
	b		M1	R		1
	c		M1	R and S		1
	d		M1	(-)1.7 (V)		1
	e		M1	$V \rightarrow V^{2+} + 2e$		1
			M2	$W^{2+} + 2e \rightarrow W$		1
					Accept in either order	
	f	i	M1	no reaction		1
		ii	M1	$T + W^{2+} \rightarrow T^{2+} + W$		1

PAPER TOTAL: 50 MARKS

Further copies of this publication are available from
International Regional Offices at www.edexcel.com/international

For more information on Edexcel qualifications, please visit www.edexcel.com
Alternatively, you can contact Customer Services at www.edexcel.com/asktheexpert or on + 44 1204 770 696

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: One90 High Holborn, London, WC1V 7BH